

Life Cycle Analysis (LCA) is an overall environmental idea, like Sustainability.

Sustainability means you keep in mind, whenever you build, buy, dispose – take any action – that if everyone in the world did this action on an ongoing basis, would it use up any resource faster than it can be replaced. A non-Sustainable activity would be logging forests faster than forests can grow new trees to replace them, in order to make newspapers.

In Life Cycle Analysis, you consider all impacts of your actions from “cradle-to-grave;” that is, from pulling the raw material from the earth to disposing of it. In the logging/newspaper example, you’d consider the forests, logging runoff to streams, pollution of logging vehicles, erosion, effects on forest animals, disposal of protective gloves, etc.

It goes further. The above example only considered the cradle-to-grave of the logging of the trees to make paper. Life Cycle considers cradle-to-grave of, not just extraction of raw material, but manufacturing of the product, use of the product, and disposal of the product.

For example, the cradle-to-grave of manufacture of the product would include considering the impacts of the ink that is used for printing, the use of chemicals to process the newspaper, the protective equipment for workers, disposal of the ink, etc. Figure the same cradle-to-grave process for use, and then disposal.

This “overall impact” concept of Life Cycle Analysis can be applied to other projects, such as finding the most environmentally preferable form of battery for the space shuttle. In this case, you’re not just considering one product’s effects, you’re considering what that product in a process will affect, compared to other products in a process. For example, a rocket fuel may have less impact for its content, but when used in a particular process, may cause higher hazardous emissions in a particular machine than other alternatives.

Life Cycle can be carried even further, to constructing buildings and landscaping. In this case, you also include the planning and engineering process, getting all stakeholders involved up front. Also, in this case, the concept name is changed from merely Life Cycle to Sustainable Design. Sustainable Design will include the type of energy used in the building, considering the local climate in roofing and landscaping, working with natural forces available and using them, such as natural light, and enhancing worker health and satisfaction.